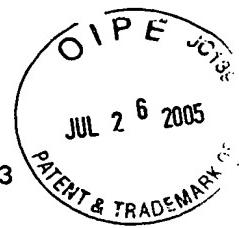


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21-07-05 12:06	From: WINSTON HSU, NO. 41526	8064986673	T-537	P01/16	U-502
 <b>North America Intellectual Property Corporation</b> P.O. BOX 506, Merrifield, VA 22116, U.S.A. Voice Mail: 302-729-1562 FAX: 806-498-6673 e-mail: winstonhsu@nalpo.com Customer No: 27765  Fax To: PHAM, LONG Tel.: (571) 272-1714 Art Unit: 2814 Fax: (571) 273-8300  From : Winston Hsu, Registration No. 41,526 Serial No.: 10/791,709  Attorney Docket No.: UECP0012USA  Subject: Information Disclosure Statement (IDS)  Total Pages: 16 pages (including cover page)  Winston Hsu 2005/07/20  UECP0012USA0_D1_1					

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21-07-10 12:21 8064986673 T-538 P09/16 U-502

**② BUNDESREPUBLIK DEUTSCHLAND** **② Patentschrift**  
**② DE 199 45 134 C2**

**② Inn CL:**  
**H01L 27/15**  
H01S 5/23  
H01L 25/62  
H01L 33/00

**② Aktenzeichen:** 199 45 134-6-33  
**② Anmeldatum:** 21. 9. 1999  
**② Offenlegungstag:** 31. 5. 2001  
**② Veröffentlichungstag der Patentanmeldung:** 14. 8. 2003

**Innerhalb von 3 Monaten nach Veröffentlichung der Erteilung kann Einspruch erhoben werden**

**② Patentinhaber:** OSRAM Opto Semiconductors GmbH, 83049 Regensburg, DE  
**② Vertreter:** Epping, Hermann & Fischer GbR, 80339 München

**② Erfinder:** Wipplowitz, Torsten, Dk., 93049 Regensburg, DE; Huber, Wolfgang, Dz., 93049 Regensburg, DE

**② FÜR die Beurteilung der Patentfähigkeit in Bezug auf geogene Druckschriften:**  
DE 2430 672 A1  
EP 09 33 942 A2

**② Leitmetallierendes Halbleiterbauelement hoher ESD-Festigkeit und Verfahren zu seiner Herstellung**  
Lichtemittierendes Halbleiterbauelement, insbesondere auf einem Halbleiterabschnitt (10) und einer auf dem Halbleiterabschnitt aufgebrachten Halbleiterschicht (11), wobei eine erste Kontaktmetallisierung (12) auf der Substratoberfläche aufgebracht ist und eine zweite Kontaktmetallisierung (7) auf der Substratoberfläche gegenüberliegenden, Oberfläche des Halbleiterabschnitts (10) aufgebracht ist, wobei die zweite Kontaktmetallisierung (7) einen höheren Abstand von einer Oberflächenleitung (3) an-Obergang (3) anhaltenden Leitmetallabschnitt (11) als der lichtemittierende Abschnitt (10) aufweist, dadurch gekennzeichnet, dass der lichtemittierende Abschnitt (10) und der Schutzdiodenabschnitt (20) direkt übereinander angeordnet sind, ein sich von der zweiten Kontaktmetallisierung (7) bis in eine bestimmte Tiefe des Bauelementes erstreckender, den lichtemittierenden Abschnitt (10) und den Schutzdiodenabschnitt (20) elektrisch voneinander isolierender Abschnitt (16) eingeschaltet ist, und der lichtemittierende pn-Übergang (2a) ein Teil eines sich über den lichtemittierenden Abschnitt (10) und den Schutzdiodenabschnitt (20) erstreckenden pn-Übergangs (2) ist, der leitfähige Abschnitt (15) sich bei vor dem pn-Übergang (2) erstreckt, und der Schutzdiodenabschnitt (2b, 71) aus dem anderen Teil des pn-Übergangs (2) und einer weiteren Zinke gebildet ist.

**DE 199 45 134 C2**

BUNDESDRUCKEREI 08.03.2003 203 330471/9

PAGE 1/2 \* RCVD AT 7/21/2005 12:17:07 AM [Eastern Daylight Time] \* BVR-JPPTO-EPXRF-674 \* DN8 2731000 \* CSID:3944806673 \* DURATION (mm:ss):06:54

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T-539 P10/16 U-502

DE 199 45 134 C 2

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Beschreibung

[0001] Die Erfindung betrifft ein Leichtemittierendes Halbleiterbauelement nach dem Oberbegriff des Patentanspruchs 1 und ein Verfahren zu seiner Herstellung nach Patentanspruch 9.

[0002] Ein **herstellerisches Bauelement** ist aus der DE 24 30 873 A1 bekannt. Bei dem bekannten Leichtemittierenden Halbleiterbauelement handelt es sich um eine Leuchtdiode, die von einem pn-Chipung in einem Substrat gebildet ist. Neben der Leuchtdiode ist eine optische Schicht auf der Substanz aufgeschriften. In der optischen Schicht ist eine weite parallel zur Leuchtdiode geschaltete Schutzdiode angeordnet, die bei Spannungen oberhalb des Arbeitspunkts der Leuchtdiode eine größere Leitfähigkeit als die Leuchtdiode aufweist und dennoch die Leuchtdiode vor Überspannungen in Fließrichtung schützt.

[0003] Ein Nachteil des bekannten Leichtemittierenden Halbleiterbauelementen ist, daß man aufgrund einer mehrstufigen Herstellungsweise mit einer geringeren Herstellungsgeschwindigkeit als einer direkten Herstellung des Schutzdiodesabschnitts und des Leuchtdiodenabschnitts rechnen muß.

[0004] Weiterhin sind Halbleiter-Laserdioden, insbesondere solche mit Verstärkergruppen-Laserdioden (VCSELs) bekannt, die ein zunehmendes Interesse in der optischen Dateneingabe und in der Sensorik finden. Den vielen positiven Eigenschaften von VCSELs steht jedoch der Nachteil gegenüber, daß diese Bauelemente eine relativ geringe Peigelung gegen ESD (Electro Static Discharge) Schäden aufweisen. Oftmals für Anwendungen im kommerziellen und industriellen Bereich werden von den Kunden jedoch ESD-sichere Bauelemente gefordert, d. h. in der Regel müssen die Bauelemente eine ESD-Spannung von 2000 V unterschreiten können. Dabei wird das sogenannte Human-Body-Modell eingesetzt, bei dem eine bestimme Kapazität mit der entsprechenden Spannung aufgeladen wird und die Entladung der Kapazität über das zu testende Bauelement erfolgt.

[0005] Die Bauelementeigenschaften dürften sich trotz der unterschiedlichen hohen Strom-Spannung-Belastung nicht verändern. VCSELs bestehen ja nach Baufürst jedoch nur ESD-Festigkeiten bis zu 100 V. Belastungen über 100 V in Sperrrichtung der Diode ergeben dabei wiederum kleinste ESD-Peigelungen wie in Fließrichtung. Daher sind für die ESD-Sicherheit von VCSELs die Belastungen in Sperrrichtung unterschrieben.

[0006] Um Bauteile mit geringen ESD-Sicherheitswerten zu verhindern, müssen spezielle ESD-Sicherheitsvorrichtungen eingesetzt werden, was in zwei mögliche Anwendungsfällen von der Anwendungsseite her nicht akzeptabel ist. Messungen an VCSELs-Bauelementen mit unterschiedlichem Durchmesser haben ergaben, daß die ESD-Perspektiv von VCSELs abhängt von der Größe der aktiven Fläche. Es darf nicht sein, daß eine größere aktive Fläche auch eine größere ESD-Sicherheit bewirkt. Da aber die aktive Fläche von VCSELs auch entscheidend anderes Bauelementeigenschaften, wie Schwellstrom, Widerstand, Strukturqualität, usw. bestimmt, kann nicht einfach eine größere Bauelementgröße gewählt werden, um die ESD-Sicherheit zu verbessern. Diese Schwierigkeit tritt nicht nur bei VCSEL-Dioden, sondern auch bei anderen leichtemittierenden Halbleiterbauelementen, wie halbleiterseitig leichtemittierenden Laserdioden und LEDs, auf.

[0007] Auf der BP 9 23 842 A2 ist daher eine Anordnung mit einem VCSEL bekannt, in dem eine Schutzdiode amperpfaf geschaltet ist. Sowohl der VCSEL als auch die Schutzdiode sind auf einem Substrat in einer Halbleiterabschicht angeordnet, wobei die Schutzdiode durch ei-

nen Schotter reichende Oberfläche vom VCSEL elektrisch isoliert ist. Schotterabschicht und Leichtemittierender Abschnitt sind bei der bekannten Anordnung daher räumlich getrennt.

[0008] Ausgehend von diesem Stand der Technik liegt der Erfordernis die Aufgabe zugrunde, ein einfach herstellbares Leichtemittierendes Halbleiterbauelement hoher ESD-Festigkeit und ein Verfahren zu seiner Herstellung anzugeben, wobei die übigen Bauelementeigenschaften nicht wesentlich beeinträchtigt werden sollen.

[0009] Diese Aufgabe wird mit den kennzeichnenden Merkmalen des Patentanspruchs 1 gelöst.

[0100] Demgegenüber beachte die Rfindung ein Leichtemittierendes Halbleiterbauelement mit einem Halbleiterabschnitt und einer auf dem Halbleiterabschnitt aufgeschriften Halbleiterabschichtfolge, wobei die Halbleiterabschichtfolge einen Leuchtdiodenabschnitt und einen Schutzdiodesabschnitt, enthaltend einen Schutzdiodesabschnitt aufweist, der hauptsamkeitlich zugehörig ist, und eine Kontaktmetallisierung auf der Schutzdiodesabschnitt und eine zweite Kontaktmetallisierung auf der Leuchtdiodenabschicht gegenüberliegt, und der Schutzdiodesabschnitt darunter angeordnet ist, daß der Schutzdiodesabschnitt eine höhere Peigelung und bei einer variablen den Kontaktmetallisierungen an das Bauelement angelegten Spannungen, die höher als die Fließspannung des Schutzdiodesabschutts, ist, einen geringeren elektrischen Widerstand als der Leuchtdiodenabschicht aufweist. Der Leichtemittierende Abschnitt und der Schutzdiodesabschnitt in der Halbleiterabschichtfolge sind zusammenhängend gehalten zu sein, angeordnet, wobei es sich von der zweiten Kontaktmetallisierung bis vor dem pn-Übergang des Bauelementes erweckender, den Leichtemittierenden Abschnitt und den Schutzdiodesabschnitt elektrisch voneinander isolierende Abschnittsangebaut ist, der Leichtemittierende pn-Übergang ein Teil eines sich über die Leichtemittierende Abschnitt und den Schutzdiodesabschnitt erstreckenden pn-Übergangs ist, und der Schutzdiodesabschnitt an dem endlichen Teil des pn-Übergangs und einer weiteren Diode gelegt ist.

[0101] Die Schutzdiodesabschicht des Schutzdiodesabschnitts sind sonst einen pn-Übergang des Leichtemittierenden Abschnitts enthaltend und weisen eine höhere Durchschwelle und Kathodspannung als der pn-Übergang auf. Im normalen Arbeitsbetrieb des Halbleiterbauelements fließt praktisch der gesamte Strom über den Leichtemittierenden Abschnitt, da es den hauptsamkeitlichen Abschnitt und die Schutzdiodesabschnitt parallel angelegte Spannung unterhalb der Durchbruchspannung der Schutzdiode liegt. Während also bei normalen Betrieb praktisch kein Strom über die parallel geschalteten Schutzdioden fließt, bewirkt eine hohe Spannung während einer ESD-Belastung eine Durchschaltung der Schutzdioden. Aufgrund des dann sehr niedrigen elektrischen Widerstands des Schutzdiodesabschnitts gegenüber dem Leichtemittierenden Abschnitt fließt der überwiegende Teil des ESD-Belastungstromes über die parallel geschalteten Schutzdioden. Dadurch wird das eigentliche Leichtemittierende Halbleiterbauelement geschützt.

[0102] Insbesondere ist vorgesehen, daß die Kontaktlinien einen Überkreuzungspunkt oberhalb der Kwick- oder Durchbruchspannung der Schutzdioden aufweisen.

[0103] Weiters ist vorgesehen, daß der pn-Übergang sich über die gesamte Breite des Halbleiterbauelementes erstreckt und eine der Schutzdioden durch den in dem Schutzdiodesabschnitt befindlichen Abschnitt des pn-Übergangs geklebt ist. Die weitere Diode ist dabei voneinander durch einen Schottky-Kontakt zwischen dem zweiten elektrischen

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Fax To: PHAM, LONG	Tel.: (571) 272-1714				
Art Unit: 2814	Fax: (703) 872-9306				
From: Winston Hsu, Registration No. 41,526					
Serial No.: 10/791,709					
Attorney Docket No.: UECP0012USA					
Subject: Information Disclosure Statement (IDS)					
Total Pages: 16 pages (including cover page)					
Winston Hsu 07/21/2005					
<p style="text-align: center;"><b>RESUBMIT</b></p> <p style="text-align: center;">Information Disclosure Statement (IDS)</p> <p>Dear Sir,</p> <p>The applicant submitted this Information Disclosure Statement on 07/21/2005 in US eastern time 00:05 AM via fax number 571-273-8300. However, the submission was either failed or incomplete, the applicant hereby submits the Information Disclosure Statement again via fax number 703-872-9306. Please ignore the previous submission, and take the current submission as substitute.</p>					
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No.</td><td colspan="2">41,526</td></tr><tr><td colspan="5">CERTIFICATE OF TRANSMISSION/MAILING</td></tr><tr><td colspan="5">I hereby certify that the correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below. Signature _____</td></tr><tr><td colspan="2">Typed or printed name _____</td><td colspan="3">Date _____</td></tr><tr><td colspan="5">This collector of information is required by 37 CFR 1.6. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collector is estimated to 2 hours to complete, including gathering the required information and transmitting the information on form to the USPTO. 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Box 1450, Alexandria, VA 22313-1450.</td></tr><tr><td colspan="5">If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.</td></tr></table>					ENCLOSURES (Check off that apply)					<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached		<input type="checkbox"/> Drawings <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD			<input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavit/Declaration(s)		<input type="checkbox"/> Appear Communication to Board of Appeals and Interferences <input type="checkbox"/> Appear Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below)			<input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request					<input type="checkbox"/> Information Disclosure Statement					<input type="checkbox"/> Certified Copy of Priority Document(s)					<input type="checkbox"/> Reply to Missing Parts <input type="checkbox"/> Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.63					Remarks:					SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT					Print Name	North America Intellectual Property Corporation				Signature	Winston Hsu				Printed name	Winston Hsu				Date	07/21/2005	Reg. 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TRANSMITTAL FORM		PTO/SB/21 (09-04) Approved for use through 07/31/2004 GSA GEN. REG. NO. 27 U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE																																																																																																																																									
(To be used for all correspondence after issue filing)		Application Number	10/791,709																																																																																																																																								
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TO:

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22-07-'05 12:20 12 WINSTON HSU, NO. 41526 8064986673 T-601 P04/16 U-546

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Effective on 12/08/2004.  
Fees pursuant to the Consolidated Appropriations Act, 2008 (H.R. 4878).

**FEE TRANSMITTAL  
For FY 2005**

Applicant claims small entity status. See 37 CFR 1.27

**TOTAL AMOUNT OF PAYMENT (\$)** 180.00

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**FEES CALCULATION**

**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES	
	Small Entity Fee (\$)	Large Entity Fee (\$)	Small Entity Fee (\$)	Large Entity Fee (\$)	Small Entity Fee (\$)	Large Entity Fee (\$)
Utility	300	150	500	250	200	100
Design	200	100	100	50	130	65
Plant	200	100	300	150	160	80
Reissue	300	150	500	250	600	300
Provisional	200	100	0	0	0	0

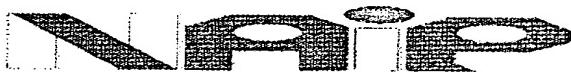
PAGE 1114390 AT 7/22/2005 12:16:12 AM (Eastern Daylight Time) 14V1U3P10-27X07-0N \* DIS312720364 \* CSD:8064986673 \* DURATION (min+sec):01-20

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時間 :22-07-'05 12:21  
電話號碼1 :8064986673  
名稱 :WINSTON HSU, NO. 41526

檔案號碼 : 546  
日期 : 22.07 12:05  
至 : 00217038729306  
原稿頁數 : 16  
啓始時間 : 22.07 12:05  
結束時間 : 22.07 12:21 (回復時間 : 22.07 13:21 )  
傳送頁數 : 3  
狀態 : NG DO

傳送原稿



**North America  
Intellectual Property Corporation**

P.O. BOX 506, Merrifield, VA 22116, U.S.A.

Voice Mail: 302-729-1562

FAX: 806-498-6673

e-mail: winstonhsu@naipo.com

Customer No.: 27765

**Fax To: PHAM, LONG  
Art Unit: 2814**

**Tel.: (571) 272-1714  
Fax: (703) 872-9306**

**From : Winston Hsu, Registration No. 41,526**

**Serial No.: 10/791,709**

**Attorney Docket No.: UECP0012USA**

**Subject: Information Disclosure Statement (IDS)**

**Total Pages: 16 pages (including cover page)**

**Winston Hsu 07/21/2005**

**RESUBMIT**

**Information Disclosure Statement (IDS)**

**Dear Sir,**

**The applicant submitted this Information Disclosure Statement on 07/21/2005 in US eastern time 00:05 AM via fax number 571-273-8300. However, the submission was either failed or incomplete, the applicant hereby submits the Information Disclosure Statement again via fax number 703-872-9306. Please ignore the previous submission, and take the current submission as substitute.**

**UECP0012USA01.DOC**

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電話號碼1 :8064986673  
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檔案號碼 : 502  
日期 : 21.07 12:05  
至 : 200215712738300  
原稿頁數 : 16  
啓始時間 : 21.07 12:06  
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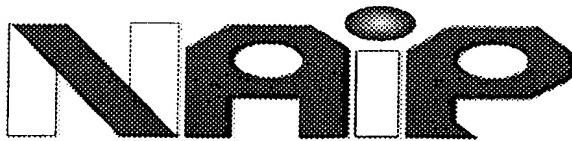
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**Winston Hsu 2005/07/20**

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PTO/SB/97 (09-04)

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Application No: 10/791,709

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<input type="checkbox"/> Remarks		
<b>SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT</b>		
Firm Name	North America Intellectual Property Corporation	
Signature		
Printed name	Winston Hsu	
Date	07/21/2005	Reg. No. 41,526

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Effective on 12/08/2004.

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

# FEE TRANSMITTAL For FY 2005

 Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 180.00)

**Complete if Known**

Application Number	10/791,709
Filing Date	03/04/2004
First Named Inventor	Jen-Chau Wu
Examiner Name	PHAM, LONG
Art Unit	2814
Attorney Docket No.	UECP0012USA

**METHOD OF PAYMENT** (check all that apply)

Check  Credit Card  Money Order  None  Other (please identify): \_\_\_\_\_

Deposit Account Deposit Account Number: **50-3105** Deposit Account Name: North America Intellectual Property Corp.

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

Charge fee(s) indicated below  Charge fee(s) indicated below, except for the filing fee

Charge any additional fee(s) or underpayments of fee(s)  Credit any overpayments

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**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity	Fee (\$)	Small Entity	Fee (\$)	Small Entity	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

**2. EXCESS CLAIM FEES****Fee Description**

Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent

Fee (\$)	Small Entity
50	25
200	100
360	180

Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent

Multiple dependent claims

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	Multiple Dependent Claims	Fee (\$)	Fee Paid (\$)
- 20 or HP =	x	=				
HP = highest number of total claims paid for, if greater than 20						

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
- 3 or HP =	x	=	

HP = highest number of independent claims paid for, if greater than 3

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =	/ 50 =	(round up to a whole number) x	=	

**4. OTHER FEE(S)**

Non-English Specification, \$130 fee (no small entity discount)

Other: submission of Information Disclosure Statement 18 0.00**SUBMITTED BY**

Signature	<i>Winston Hsu</i>	Registration No. (Attorney/Agent) 41,526	Telephone 302-729-1562
Name (Print/Type)	Winston Hsu		Date 07/21/2005

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: Wu, Jen-chau et al.

5 Appl. No.: 10/791,709 Filing Date: 03/04/2004

Examiner: PHAM, LONG Art Unit: 2814

Docket No.: UECP0012USA

Title: ESD PROTECTION CONFIGURATION AND METHOD  
10 FOR LIGHT EMITTING DIODES

To: Commissioner for Patents  
P.O. BOX 1450  
Alexandria, VA 22313-1450

15 Subject: Information disclosure statement under 37 CFR §1.56

Dear Sir,

This is an Information Disclosure Statement in accordance with the duty to disclose information material to patentability under 37 CFR §1.56. The applicant wishes to make of record the document(s) listed on the accompanying form PTO/SB/08.

25 Since this IDS is filed after the mailing date of the first Office action but before notice of allowance, consideration of the information disclosure statement is hereby requested according to 37 CFR §1.97(c). That each item of information contained in the information disclosure statement was first cited in an Office communication mailed on 01/14/2005 for the counterpart German patent application number 10 2004 014 864.3, which are more than three months from the filing of the

information disclosure statement. Accordingly, the fee of submission of an information disclosure statement set forth in § 1.17(p) is enclosed to fulfill § 1.97 requirement.

5 According to the requirement set forth in 37 C.F.R. § 1.98 and M.P.E.P. 609, the applicants are submitting a copy of the cited reference (German Patent DE 19945134C2) and an English language abstract of the cited German patent. The English language title and abstract of DE 19945134C2 are listed as follows:

10

Title:

LIGHT EMITTING SEMI-CONDUCTING COMPONENT WITH HIGH  
ESD RIGIDITY AND METHOD FOR PRODUCTION OF SAID  
COMPONENT

15

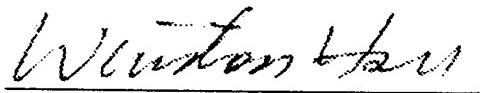
Abstract:

The invention relates to a light-emitting semi-conducting component of a light-emitting segment (10), especially a VCSEL-semi-conducting laser diode and a protective diode segment (20) connected in parallel. Said protective diode (3b, 71) is a series circuit of a Schottky-contact (71) and a part of a (3b) pn-junction (3). At larger ESD-voltage loads, the protective diode (3b, 71) is triggered, so that a majority of said electrical current flows through said protective diode (3b, 71) and said laser diode is thereby protected.

25

It is respectfully requested that the examiner can consider the document(s) listed on the accompanying form PTO/SB/08 and that it be made of record in the application. The applicants sincerely hope that the examiner initials the cited reference(s) on the form and that a copy 30 of the initialed form be sent to the applicants with the next communication from the examiner.

Respectfully submitted,



Date: July 21, 2005

Winston Hsu, Patent Agent No. 41,526

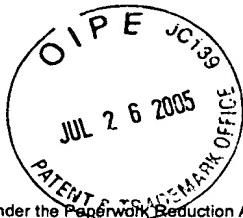
5 P.O. BOX 506, Merrifield, VA 22116, U.S.A.

Voice Mail: 302-729-1562

Facsimile: 806-498-6673

e-mail : [winstonhsu@naipo.com](mailto:winstonhsu@naipo.com)

- 10 Note: Please leave a message in my voice mail if you need to talk to me. The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.



PTO/SB/08A (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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**Substitute for form 1449/PTO**

## **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

**(Use as many sheets as necessary)**

Sheet 1 of 1

Complete if Known	
Application Number	10/791,709
Filing Date	03/04/2004
First Named Inventor	Jen-Chau Wu
Art Unit	2814
Examiner Name	PHAM, LONG
Attorney Docket Number	UECP0012USA

**U. S. PATENT DOCUMENTS**

## **FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
	1	DE 199 45 134 C 2	08-14-2003	OSRAM Opto Semiconductors GmbH	all	+

Examiner Signature		Date Considered	
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<sup>1</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>2</sup>Applicant's unique citation designation number (optional). <sup>3</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>4</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>5</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>6</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments or the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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